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EXAMINER

COUGHLAN, PETER D

ART UNIT	PAPER NUMBER
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2129

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/830,177

Applicant(s)

WILSON, SCOTT B.

Examiner

Peter Coughlan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-81 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-81 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/30/04 &amp; 1/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## Detailed Action

1. Claims 1-81 are pending in this application.

### **35 USC § 101**

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 14-31 and 37-81 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. Compression of a neural network, combining neural networks, updating neural networks have no practical application. The result has to be a practical application. Please see the interim guidelines for examination of patent applications for patent subject matter eligibility published November 22, 2005 in the official gazette.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful,

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tangible and concrete.” If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101. Compression of a neural network has what benefit? Combining neural networks is provides what real world function? Updating a neural network for what reason?

The invention must be for a practical application and either:

- 1) specify transforming (physical thing) or
- 2) have the FINAL RESULT (not the steps) achieve or produce a useful (specific, substantial, AND credible), concrete (substantially repeatable/ non-unpredictable), AND tangible (real world/ non-abstract) result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

There has to be a real world function or purpose for the compression of neural networks, updating neural networks or detection modules. If not then these claims are exercises only with no practical application.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 14, 17, 18 are rejected under 35 U.S.C. 102(b) (hereinafter referred to as **Katz**) being anticipated by **Katz**, U.S. 5943661.

#### Claim 1

**Katz** anticipates collecting the plurality of training cases, wherein each training case has an input state and a corresponding output value (**Katz**, C2:12-23; All training samples have an input and a corresponding output value.); constructing the neural network based on the training cases (**Katz**, C2:12-23; 'Construction' of applicant is equivalent to 'expansion of the PNN' of **Katz**.); and training the neural network. (**Katz**, C2:12-23)

#### Claim 14

**Katz** anticipates determining a plurality of partitions based on the pattern layer nodes of the neural network wherein each partition comprises a plurality of groups of pattern layer nodes (**Katz**, C1:41-58; 'Determining a plurality of partitions' of applicant is equivalent to 'classification' of **Katz**.); selecting one of the plurality of partitions based on a partition metric (**Katz**, C8:42-61; 'Partition metric' of applicant is equivalent to 'weights'

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of Katz.); and for each group of pattern layer nodes within the selected partition (**Katz**, Fig. 4; **Katz** illustrates that a group of nodes in layer 'L' corresponds to a node in layer 'M'. This group on nodes in layer 'L' is equivalent to a 'group of pattern layer nodes' of applicant.); replacing the group of pattern layer nodes with a compressed pattern layer node (**Katz**, C2:66 through C3:2; 'Compressed pattern layer node' of applicant is accomplished by 'data compression scheme' of Katz.); and adjusting the link weights between the compressed pattern layer node and any summation layer nodes to reflect the number of replaced pattern layer nodes. (**Katz**, C2:12-23; By training, weights are adjusted so that output nodes reflect input pattern layer nodes.)

#### Claim 17

**Katz** anticipates the partition metric comprises determining an error value for each partition. (**Katz**, C9:23 through C10:12; 'Error value' of applicant is equivalent to 'error bars' of **Katz**.)

#### Claim 18

**Katz** anticipates the partition metric comprises determining a compression ratio for each partition. (**Katz**, C2:44-56; 'Compression ratio' of applicant is equivalent to 'compression procedures' of **Katz**.)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6, 8-10, 13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above in view of Huo. (U. S. Patent 6282305, referred to as **Huo**)

#### Claim 2

Katz does not teach selecting a plurality of time epochs from a record of instrument feature values; and indicating an output value for each selected time epoch.

Huo teaches selecting a plurality of time epochs from a record of instrument feature values (**Huo**, C3:35-44; 'Plurality of time epochs' of applicant is equivalent to 'different periods of time' of Huo.); and indicating an output value for each selected time epoch. (**Huo**, C3:35-44; 'Indicating an output value' of applicant is equivalent to 'develop breast cancer over a defined time period' of Huo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using time intervals for measurement purposes as taught by Huo

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to have a plurality of time epochs from a record of instrument feature values; and indicating an output value for each selected time epoch.

For the purpose of using time as a domain measurement input value.

### Claim 3

Katz does not teach selecting a configuration of instrument features; and wherein the step of constructing the neural network based on the training cases comprises: defining the neural network topology based on the input values and output values of the plurality of training cases; and determining a kernel width value.

Huo teaches selecting a configuration of instrument features; and wherein the step of constructing the neural network based on the training cases comprises (**Katz**, C3:45-61; 'Instrument features' of applicant is equivalent to selected data points' of **Katz**.); defining the neural network topology based on the input values and output values of the plurality of training cases (**Katz**, C2:66 through C3:2; Defining the 'topology' of the neural network of applicant is equivalent to 'transformation into the neural network' of **Katz**.); and determining a kernel width value. (**Katz**, C3:62 through C4:7; 'Determination of the kernel width is performed by the kernel function of **Katz**.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of **Katz** by using input values to determine the topography of the neural network as taught by Huo to select a configuration of instrument features; and wherein the step of constructing the neural network based on the training cases comprises: defining the neural network topology based on the input

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values and output values of the plurality of training cases; and determining a kernel width value.

For the purpose of having a different topography of a neural network if needed for better results.

Claim 4

Katz teaches the step of training the neural network includes determining an optimal kernel width value by minimizing prediction error of the neural network. (**Katz**, C4:18-22; Applicant uses Parzen's method for population density and Katz uses Parzen's method for determining population density.)

Claim 5

Katz teaches determining an optimal input feature kernel width value for each input feature based on the determined optimal kernel width value. (**Katz**, C4:18-22; The function of Katz is the function of 'x' with respect to sigma. Sigma is based on Sigma.)

Claim 6

Katz teaches the neural network is a probabilistic neural network. (**Katz**, C2:12-23)

Claim 8

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Katz teaches determining the kernel width value is based on a population statistic of the plurality of training cases. (**Katz**, C4:18-22; Katz illustrates as population grows, kernel width decreases, thus it is based upon population statistics.)

#### Claim 9

Katz teaches determining the kernel width value is based at least in part on the mathematical term of the number of training cases raised to an exponent power of about negative one-fifth. (**Katz**, C3:62 through C4:22; 'About negative  $1/5$ ' is close enough to 'negative  $1/2$ ' of Katz.)

#### Claim 10.

Katz teaches determining the kernel width value is based on the population distribution of the plurality of training cases. (**Katz**, C4:18-22; Katz illustrates as population grows, kernel width decreases, thus it is based upon population statistics. This would be the same in a functioning neural network as it would be in a training neural network.)

#### Claim 13.

Katz teaches normalizing the input values of the plurality of training cases based on the standard deviation for each input feature. (**Katz**, C4:18-22; The 'standard deviation' of each input node can be used to normalized the training data of applicant is

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illustrated by the generation of the value of sigma which is one standard deviation of Katz.)

Claim 19

Katz does not teach the partition metric comprises determining a Minimum Description Length for each partition.

Huo teaches the partition metric comprises determining a Minimum Description Length for each partition. (**Huo**, C20:53-64; 'Minimum Description Length' of applicant is equivalent to 'minimum squared difference' of Huo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by finding the minimum length needed as taught by Huo to the partition metric comprises determining a Minimum Description Length for each partition.

For the purpose of finding the smallest portion needed for accurate results in lower percentage of extreme input measurements.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject

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matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Huo as set forth above, in view of Wasserman. (U. S. Patent 5559929, referred to as **Wasserman**)

Claim 7

Katz and Huo do not teach the neural network is a generalized regression neural network.

Wasserman teaches the neural network is a generalized regression neural network. (**Wasserman**, C9:60 through C10:3) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Huo by using a regression neural network as taught by Wasserman to have the neural network to be a generalized regression neural network.

For the purpose of allowing training on new data without requiring previous data to be available.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Huo as set forth above, in view of Oriol. (U. S. Patent Publication 20010014776, referred to as **Oriol**)

#### Claim 11

Katz and Huo do not teach the population distribution of the plurality of training cases is approximately Normal.

Oriol teaches the population distribution of the plurality of training cases is approximately Normal. (**Oriol**, ¶0086; 'Normal population distribution' of applicant is equivalent to 'Gaussian windows' of Oriol.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Huo by using normal distributions as taught by Oriol to have the population distribution of the plurality of training cases that is approximately Normal.

For the purpose of approximating sigma in a standard distribution.

Claim 12

Katz teaches normalizing the input values of the plurality of training cases based on the standard deviation for each input feature. (Katz, C4:18-22; The 'standard deviation' of each input node can be used to normalized the training data of applicant is illustrated by the generation of the value of sigma which is one standard deviation of Katz.)

Katz and Huo do not teach the step of determining the kernel width value comprises defining the kernel width value to be a number in the range 0.1 to 1.0.

Oriol teaches the step of determining the kernel width value comprises defining the kernel width value to be a number in the range 0.1 to 1.0. (Oriol, ¶0006; 'Kernel width value' of applicant is equivalent to 'range' of Oriol.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Huo by using sigma as taught by Oriol to have the step of determining the kernel width value comprises defining the kernel width value to be a number in the range 0.1 to 1.0.

For the purpose of using the same scale for all input parameters thus balancing variables from different domains.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 16, 20, 33, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Straforini. (U. S. Patent 6092059, referred to as **Straforini**)

#### Claim 15

Katz does not teach the partition metric comprises determining a BIC value for each partition.

Straforini teaches the partition metric comprises determining a BIC value for each partition. (**Straforini**, C17:23-35; 'BIC value' of applicant is equivalent to 'bayes based configuration' of Straforini.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a BIC value as taught by Straforini to have the partition metric comprises determining a BIC value for each partition.

For the purpose of using Bayesian Information Criterion is used to determine which instrument configuration is the most optimal.

Claim 16

Katz does not teach the partition metric comprises selecting the maximum BIC value.

Straforini teaches the partition metric comprises selecting the maximum BIC value. (**Straforini**, C17:64 through C18:15; 'Maximum BIC value' of applicant is equivalent to 'first feature in the list is that with the highest rank' of Straforini.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by choosing the maximum as taught by Straforini to have the partition metric comprised by selecting the maximum BIC value.

For the purpose of selecting the best configuration.

Claim 20

Katz does not teach the partition metric comprises determining a BIC value.

Straforini teaches the partition metric comprises determining a BIC value. (**Straforini**, C17:23-35; 'BIC value' of applicant is equivalent to 'bayes based configuration' of Straforini.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using the BIC value as taught by Straforini to have the partition metric comprised by determining a BIC value.

For the purpose of using Bayesian Information Criterion is used to determine which instrument configuration is the most optimal.

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Katz teaches an error value (**Katz**, C9:23 through C10:12; 'Error value' of applicant is equivalent to 'error bars' of Katz.), and a compression ratio value for each partition. (**Katz**, C2:44-56; 'Compression ratio' of applicant is equivalent to 'compression procedures' of Katz.)

### Claim 33

Katz does not teach creating a training case, by selecting a second input state and associating it with an event class; and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case.

Straforini teaches creating a training case, by selecting a second input state and associating it with an event class (**Straforini**, abstract; 'Training case' of applicant is equivalent to 'training set' of Straforini.); and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case. (**Straforini**, C1:5-9) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by making a training set as taught by Straforini to creating a training case, by selecting a second input state and associating it with an event class; and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case.

For the purpose of making the neural network useful by training it to perform a function.

### Claim 37

Katz does not teach applying the detection module to classify a first input state into a first event class; detecting that the detection module incorrectly classified the first input state into the first event class; creating a first training case by associating the first input state with a second event class; and reconfiguring the detection module in real-time based on the first training case.

Straforini teaches applying the detection module to classify a first input state into a first event class (**Straforini**, C11:35-43; 'Detection module' of applicant is equivalent to 'neural network' of Straforini.); detecting that the detection module incorrectly classified the first input state into the first event class (**Straforini**, abstract; 'Detecting' of applicant is accomplished by 'training' of Straforini.); creating a first training case by associating the first input state with a second event class (**Straforini**, C5:23-31; By employing weights, the neural network can adjust so that it can classify future 'second class events'.); and reconfiguring the detection module in real-time based on the first training case. (**Straforini**, C5:23-31; 'Reconfigured' of applicant is equivalent to 'weighted' of Straforini.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using the detection module to classify and if improper to reclassify as a second event as taught by Straforini to apply the detection module to classify a first input state into a first event class; detecting that the detection module incorrectly classified the first input state into the first event class; creating a first training case by associating the first input state with a second event class; and reconfiguring the detection module in real-time based on the first training case.

For the purpose of updating the detection module.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Vaithyanathan. (U. S. Patent 5857179, referred to as **Vaithyanathan**)

**Claim 24**

Katz does not teach selecting one of the determined plurality of partitions based on a partition metric comprises: determining, for each partition within the determined plurality of partitions, a centroid value for each group of pattern layer nodes within that partition.

Vaithyanathan teaches selecting one of the determined plurality of partitions based on a partition metric comprises: determining, for each partition within the determined plurality of partitions, a centroid value for each group of pattern layer nodes

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within that partition. (**Vaithyanathan**, C10:22-42) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by find the centroid value as taught by Vaithyanathan to select one of the determined plurality of partitions based on a partition metric comprises: determining, for each partition within the determined plurality of partitions, a centroid value for each group of pattern layer nodes within that partition.

For the purpose is so similar patterns can be merged and described by their centroid and weight.

#### Claim 25

Katz does not teach selecting one of the determined plurality of partitions based on a partition metric further comprises: determining, for each partition within the determined plurality of partitions, a covariance value for each group of pattern layer nodes within that partition.

Vaithyanathan teaches selecting one of the determined plurality of partitions based on a partition metric further comprises: determining, for each partition within the determined plurality of partitions, a covariance value for each group of pattern layer nodes within that partition. (**Vaithyanathan**, C6:50-67) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by finding the covariance value as taught by Vaithyanathan to select one of the determined plurality of partitions based on a partition metric further

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comprises: determining, for each partition within the determined plurality of partitions, a covariance value for each group of pattern layer nodes within that partition.

For the purpose of using an improved compression method may be employed wherein each pattern is described by its centroid, weight and covariance matrix.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Straforini as set forth above, in view of Vaithyanathan. (U.S. Patent 5857179, referred to as **Vaithyanathan**)

#### **Claim 21**

Katz and Straforini do not teach the K-means clustering method is applied to determine a plurality of partitions.

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Vaithyanathan teaches the K-means clustering method is applied to determine a plurality of partitions. (**Vaithyanathan**, C2:66 through C3:9) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Straforini by using k-means as taught by Vaithyanathan to have the K-means clustering method is applied to determine a plurality of partitions.

For the purpose of using an industry standard method of clustering data.

#### Claim 22

Katz and Straforini the hierarchical clustering method is used to determine the plurality of partitions.

Vaithyanathan teaches the hierarchical clustering method is used to determine the plurality of partitions. (**Vaithyanathan**, C8:12-23) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Straforini by using hierarchical clustering as taught by Vaithyanathan to have the hierarchical clustering method that is used to determine the plurality of partitions.

For the purpose of using an industry standard method of clustering data.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz, Straforini and Vaithyanathan as set forth above, in view of Banavar. (U. S. Patent 6336119, referred to as **Banavar**)

#### Claim 23

Katz, Straforini and Vaithyanathan do not teach the step of determining a plurality of partitions comprises applying the hierarchical clustering method to create partitions containing between about 1 and about 20 groups.

Banavar teaches the step of determining a plurality of partitions comprises applying the hierarchical clustering method to create partitions containing between about 1 and about 20 groups. (**Banavar**, abstract; 'Between about 1 and 20 groups' of applicant is equivalent to 'C clusters where  $C > 1$ ' of Banavar.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz, Straforini and Vaithyanathan by keeping group size below 20 groups as taught by Banavar to have the step of determining a plurality of

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partitions comprises applying the hierarchical clustering method to create partitions containing between about 1 and about 20 groups.

For the purpose of balancing the compression versus loss of accuracy

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Spence. (U. S. Patent 6324532, referred to as **Spence**)

#### **Claim 26**

Katz does not teach determining which pattern layer nodes of the constituent neural networks are redundant; creating a combined neural network by adding non-redundant pattern layer nodes of one constituent neural network to the pattern layer of the other constituent neural network.

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Spence teaches determining which pattern layer nodes of the constituent neural networks are redundant (**Spence**, C7:60-64); creating a combined neural network by adding non-redundant pattern layer nodes of one constituent neural network to the pattern layer of the other constituent neural network. (**Spence**, C8:40-45) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by finding redundant patterns as taught by Spence to determine which pattern layer nodes of the constituent neural networks are redundant; creating a combined neural network by adding non-redundant pattern layer nodes of one constituent neural network to the pattern layer of the other constituent neural network.

For the purpose of having an efficient system.

#### Claim 27

Katz does not teach the second constituent neural network has extra input nodes not present in the first constituent neural network, and further comprising: adding input feature values to the training cases of the first constituent neural network, wherein the added input feature values correspond to the extra input nodes, based on the raw instrument values corresponding to the training cases of the first constituent neural network.

Spence teaches the second constituent neural network has extra input nodes not present in the first constituent neural network, and further comprising: adding input feature values to the training cases of the first constituent neural network, wherein the

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added input feature values correspond to the extra input nodes, based on the raw instrument values corresponding to the training cases of the first constituent neural network. (**Spence**, Fig. 11; Spence illustrates two separate neural networks (1110 and 1114) that contain different nodes not present in the other.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by modifying the neural network as needed as taught by Spence to have the second constituent neural network has extra input nodes not present in the first constituent neural network, and further comprising: adding input feature values to the training cases of the first constituent neural network, wherein the added input feature values correspond to the extra input nodes, based on the raw instrument values corresponding to the training cases of the first constituent neural network.

For the purpose of having the ability to change the design of the neural network for changing demands and requirements.

#### Claim 28

Katz does not teach reconfiguring the neural network based on a first training case without retraining the neural network (**Spence**, Fig. 11; If item 1110 were to be pruned, this would not effect item 1114 thus no retraining required.); and applying the neural network to detect an event in a record of values.

Spence teaches reconfiguring the neural network based on a first training case without retraining the neural network (**Spence**, Fig. 11; If item 1110 were to be pruned, this would not effect item 1114 thus no retraining required.); and applying the neural

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network to detect an event in a record of values. (**Spence**, C2:6-14) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by changing the configuration without training as taught by Spence to reconfigure the neural network based on a first training case without retraining the neural network (**Spence**, Fig. 11; If item 1110 were to be pruned, this would not effect item 1114 thus no retraining required.); and applying the neural network to detect an event in a record of values.

For the purpose of making smaller changes as needed for efficiency

#### Claim 29

Katz does not teach reconfiguring the neural network comprises adding a first pattern layer node to the neural network based on the first training case.

Spence teaches reconfiguring the neural network comprises adding a first pattern layer node to the neural network based on the first training case. (**Spence**, C8:40-45) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using patterns for network configuration as taught by Spence to reconfigure the neural network comprises adding a first pattern layer node to the neural network based on the first training case.

For the purpose of using a design with an established result for efficiency and of not having to reinvent the design.

#### Claim 30.

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Katz teaches creating the first training case based on the record of values. (**Katz**, C1:41-58; 'Training case' of applicant is equivalent to 'data set' of Katz.)

### Claim 31

Katz does not teach applying the neural network to generate a first output value based on a first input state; detecting a first prediction error in the first output value; creating a first training case based on the first input state wherein the first training case corrects the first prediction error; reconfiguring the neural network based on the first training case without retraining the neural network; and applying the neural network to generate a second output value based on a second input state.

Spence teaches applying the neural network to generate a first output value based on a first input state (**Spence**, C1:32-50; Spence illustrates training samples, each of which has it's own output value.); detecting a first prediction error in the first output value (**Spence**, C2:6-14); creating a first training case based on the first input state wherein the first training case corrects the first prediction error(**Spence**, C1:23-31; 'Corrects the first prediction error' of applicant is accomplished by 'weights' of Spence.); reconfiguring the neural network based on the first training case without retraining the neural network (**Spence**, Fig. 11; If item 1110 were to be pruned, this would not effect item 1114 thus no retraining required.); and applying the neural network to generate a second output value based on a second input state. (**Spence**, C1:32-50; Spence illustrates training samples, each of which has it's own output value.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to

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modify the teachings of Katz by using output as detecting an error and reconfiguring the neural network as taught by Spence to apply the neural network to generate a first output value based on a first input state; detecting a first prediction error in the first output value; creating a first training case based on the first input state wherein the first training case corrects the first prediction error; reconfiguring the neural network based on the first training case without retraining the neural network; and applying the neural network to generate a second output value based on a second input state.

For the purpose of using an output for detection to correct/adjust the neural network.

#### Claim 32

Katz does not teach reconfiguring the detection module further comprises adding a first pattern layer node to the neural network based on the first training case.

Spence teaches reconfiguring the detection module further comprises adding a first pattern layer node to the neural network based on the first training case. (**Spence**, C8:40-45) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using neural network patterns as taught by Spence to reconfigure the detection module further comprises adding a first pattern layer node to the neural network based on the first training case.

For the purpose of using a design with an established result for efficiency and of not having to reinvent the design.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 38-41, 44, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Phung. (U. S. Patent Publication 20020007237, referred to as **Phung**)

Claim 38

Katz does not teach transmitting a training case to a user.

Phung teaches transmitting a training case to a user. (**Phung**, ¶0033; Phung is set up as a client/server so all information must be requested before transmitting.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by sending information as taught by Phung to transmit a training case to a user.

For the purpose of allowing the users to be in other locations.

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Katz teaches reconfiguring the neural network based on the training case. (Katz, C1:41-58)

Claim 39

Katz does not teach the user receives the training case from a server.

Phung teaches the user receives the training case from a server. (Phung, ¶0033; Phung is set up as a client/server so all information must be requested before receiving.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a server as taught by Phung to have the user receives the training case from a server.

For the purpose of allowing the users to be in other locations.

Claim 40

Katz does not teach the user receives the training case from a remote user.

Phung teaches the user receives the training case from a remote user. (Phung, ¶0033; 'Remote' of applicant is equivalent to 'server' of Phung.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by transmitting training cases as taught by Phung to have the user receives the training case from a remote user.

For the purpose of allowing the users to be in other locations.

Claim 41

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Katz does not teach the training case is transmitted over a network.

Phung teaches the training case is transmitted over a network. (**Phung, ¶0033**) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by transmitting training cases as taught by Phung to have the training case is transmitted over a network.

For the purpose of allowing the users to be in other locations.

#### Claim 44

Katz does not teach the network is a wireless network.

Phung teaches the network is a wireless network. (**Phung, ¶0033**) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using wireless technology as taught by Phung to have the network is a wireless network.

For the purpose of transmission of information not being limited to a physical network.

#### Claim 45

Katz does not teach the training case is transmitted when the second user downloads the training case from a central network server.

Phung teaches the training case is transmitted when the second user downloads the training case from a central network server. (**Phung, ¶0033**; Phung is set up as a client/server so all information must be requested before transmitting.) It would have

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been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using servers as taught by Phung to have the training case is transmitted when the second user downloads the training case from a central network server.

For the purpose of allowing the users to be in other locations by using server technology.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Phung as set forth above, in view of Banavar. (U. S. Patent 6336119, referred to as **Banavar**)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Phung as set forth above, in view of Barnhill. (U. S. Patent 6157921, referred to as **Barnhill**)

Claim 43

Katz and Phung do not teach the network is a LAN.

Barnhill teaches the network is a LAN. (**Barnhill**, C15:63 through C16:13) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz and Phung by using a LAN as taught by Barnhill to have the network is a LAN.

For the purpose of allowing the users to be in other locations locally,

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Phung as set forth above, in view of Straforini. (U. S. Patent 6092059, referred to as **Straforini**)

Claim 46

Katz and Phung do not teach the reconfiguration of the neural network is accomplished in real time.

Straforini teaches the reconfiguration of the neural network is accomplished in real time. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz and Phung by providing changes in real time as taught by Straforini to have the reconfiguration of the neural network is accomplished in real time.

For the purpose of having effective changes without delays.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34, 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Straforini. (U. S. Patent 6092059, referred to as **Straforini**) and further in view of Huo, (U. S. Patent 6282305, referred to as **Huo**)

Claim 34

Katz does not teach creating a training case, by selecting a second input state and associating it with a medical state; and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case.

Huo and Straforini teach creating a training case, by selecting a second input state and associating it with a medical state (**Huo**, C13:22-30 and C17:62 through C18:33; 'medical state' of applicant is equivalent to 'cancer' of Huo.); and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case. (**Straforini**, C1:5-9) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of

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Katz by using medical information as taught by Huo and Straforini to create a training case, by selecting a second input state and associating it with a medical state; and reconfiguring the detection module in real-time to correctly classify the first input state based on the training case.

For the purpose of using real world information such as medical data.

#### Claim 35

Katz does not teach creating a training case, by selecting a second input state and associating it with a second medical state (**Huo**, C13:22-30 and C17:62 through C18:33; 'medical state' of applicant is equivalent to 'cancer' of Huo. Each 'Xi' is another input state.); and reconfiguring the detection module in real-time to detect that the first input state does not correspond to the first medical state.

Huo and Straforini teach creating a training case, by selecting a second input state and associating it with a second medical state (**Huo**, C13:22-30 and C17:62 through C18:33; 'medical state' of applicant is equivalent to 'cancer' of Huo. Each 'Xi' is another input state.); and reconfiguring the detection module in real-time to detect that the first input state does not correspond to the first medical state. (**Straforini**, C1:5-9) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using medical information for a second training state as taught by Huo and Straforini to create a training case, by selecting a second input state and associating it with a second medical state (**Huo**, C13:22-30 and C17:62 through C18:33; 'medical state' of applicant is equivalent to

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'cancer' of Huo. Each 'Xi' is another input state.); and reconfiguring the detection module in real-time to detect that the first input state does not correspond to the first medical state.

For the purpose of indicating cancer within incoming data.

#### Claim 36

Katz does not teach creating a training case, by selecting a second input state and associating it with a second medical event; and reconfiguring the detection module in real-time to correctly detect the first medical event from the first input state.

Huo and Straforini teach creating a training case, by selecting a second input state and associating it with a second medical event (**Huo**, C13:22-30 and C17:62 through C18:33; 'medical state' of applicant is equivalent to 'cancer' of Huo. Each 'Xi' is another input state.); and reconfiguring the detection module in real-time to correctly detect the first medical event from the first input state. (**Straforini**, C1:5-9) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by generation of a second event and adjusting the detection module to detect the first event as taught by Huo and Straforini to create a training case, by selecting a second input state and associating it with a second medical event; and reconfiguring the detection module in real-time to correctly detect the first medical event from the first input state.

For the purpose of using real world data for defining a second event and adjusting the detector in real time for real world results.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 47, 48, 49, 44, 48, 80, 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Barnhill. (U. S. Patent 6157921, referred to as **Barnhill**)

Claim 47

Katz does not teach creating a training case; transmitting the training case to a second user.

Katz teaches creating a training case (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.); transmitting the training case to a second user. (**Barnhill**, abstract) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings

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of Katz by generating and transmission of a training case as taught by Barnhill to create a training case; transmitting the training case to a second user.

For the purpose of enabling the user to be at a remote location.

Katz teaches reconfiguring a second neural network based on the training case.

(Katz, C1:41-58)

#### Claim 48

Katz does not teach the training case is created by a first user on a first neural network.

Barnhill teaches the training case is created by a first user on a first neural network. (**Barnhill**, abstract and C18:3-30) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by a user creating a training case as taught by Barnhill to have the training case is created by a first user on a first neural network.

For the purpose of an independent user without influence generating a training case.

#### Claim 49

Katz does not teach the first user is remotely located.

Barnhill teaches the first user is remotely located. (**Barnhill**, abstract; If the server is remote then the user is 'remotely located' as well.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify

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the teachings of Katz by having the first user not being local as taught by Barnhill to have the first user is remotely located.

For the purpose of the first user not being restricted by location.

#### Claim 77

Katz does not teach a network interface configured to interface the system with a network; a distribution authority coupled to the network interface, the distribution authority configured to receive an update from a first detection module via the network interface, and store the update; wherein the update comprises a training case.

Barnhill teaches a network interface configured to interface the system with a network (**Barnhill**, C15:63 through C16:13); a distribution authority coupled to the network interface, the distribution authority configured to receive an update from a first detection module via the network interface, and store the update (**Barnhill**, C15:63 through C16:13; 'Distribution authority' of applicant is equivalent to 'server' of **Barnhill**.); wherein the update comprises a training case. (**Barnhill**, abstract; 'Training case' of applicant is equivalent to 'test data' of **Barnhill**.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using an interface for a variety of purposes as taught by Barnhill to have a network interface configured to interface the system with a network; a distribution authority coupled to the network interface, the distribution authority configured to receive an update from a first detection module via the network interface, and store the update; wherein the update comprises a training case.

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For the purpose of being able to perform a number of functions require an interface.

Claim 78

Katz does not teach the distribution authority is further configured to transmit the update to a second detection module via the network interface.

Barnhill teaches the distribution authority is further configured to transmit the update to a second detection module via the network interface. (**Barnhill**, C15:63 through C16:13 and abstract) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by sending updates as taught by Barnhill to have the distribution authority is further configured to transmit the update to a second detection module via the network interface.

For the purpose of use of the updates not being limited to a specific location.

Claim 80

Katz teaches the update further comprises a plurality of raw instrument values corresponding to the training case. (**Katz**,C2:12-23; 'Raw instrument values' of applicant is equivalent to 'training samples' of Katz.)

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Katz does not teach wherein the distribution authority is further configured to determine whether to store and/or transmit the update.

Barnhill teaches wherein the distribution authority is further configured to determine whether to store and/or transmit the update. (**Barnhill**, abstract ) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a server as taught by Barnhill to have the distribution authority is further configured to determine whether to store and/or transmit the update.

For the purpose of using information without being restricted by location.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 50, 52, 54, 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Barnhill as set forth above, in view of Phung. (U. S. Patent Publication 20020007237, referred to as **Phung**)

Claim 50

Katz and Barnhill do not teach the training case is transmitted over a network.

Phung teaches the training case is transmitted over a network. (**Phung**, ¶0033) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Barnhill by sending information over a network as taught by Phung to the training case is transmitted over a network.

For the purpose of not having the location being a restricting factor.

Claim 52

Katz does not teach the network is a LAN.

Barnhill teaches the network is a LAN. (**Barnhill**, C15:63 through C16:13) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a LAN as taught by Barnhill to have the network is a LAN.

For the purpose of the user being local.

Claims 54

Katz and Barnhill do not teach the training case is transmitted when the second user downloads the training case from a central network server.

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Phung teaches the training case is transmitted when the second user downloads the training case from a central network server. (**Phung**, ¶0033; Phung is set up as a client/server so all information must be requested before transmitting.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Barnhill by transmitting data to a second user as taught by Phung to have the training case is transmitted when the second user downloads the training case from a central network server.

For the purpose of using a server enables user to not be restricted by location.

#### Claim 57

Katz does not teach the first user is remotely located.

Barnhill teaches the first user is remotely located. (**Barnhill**, abstract; If the server is remote then the user is 'remotely located' as well.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by having a user located remotely as taught by Barnhill to have the first user being remotely located.

For the purpose of the first user not being restricted by location.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 51, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz, Barnhill and Phung as set forth above, in view of Banavar. (U. S. Patent Publication 6336119, referred to as **Banavar**)

#### Claim 51

Katz, Barnhill and Phung do not teach the network is the Internet.

Banavar teaches the network is the Internet. (**Banavar**, C2:50 through C3:6) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz, Barnhill and Phung by using the Internet as taught by Banavar to have the network that is the Internet.

For the purpose of having world wide access to the system.

#### Claim 53

Katz and Barnhill do not teach the network is a wireless network.

Phung teaches the network is a wireless network. (**Phung**, ¶0033) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Barnhill by employing wireless technology as taught by Phung to have the network is a wireless network.

For the purpose of not being limited to a physical network.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 55, 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz and Barnhill as set forth above, in view of Straforini. (U. S. Patent 6092059, referred to as **Straforini**)

Claim 55

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Katz and Barnhill do not teach the reconfiguration of the second neural network using the training case is accomplished in real time.

Straforini teaches the reconfiguration of the second neural network using the training case is accomplished in real time. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Barnhill by using training to adjust another neural network in real time as taught by Straforini to have the reconfiguration of the second neural network using the training case that is accomplished in real time.

For the purpose of using an adjusted neural network due to the fact it is accomplished in real time.

#### Claim 79

Katz and Barnhill do not teach the second detection module is configured to reconfigure a second neural network in real-time based on the update.

Straforini teaches the second detection module is configured to reconfigure a second neural network in real-time based on the update. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Katz and Barnhill by having a device to reconfigure a second neural network as taught by Straforini to have the second detection module is configured to reconfigure a second neural network in real-time based on the update.

For the purpose having a device that allows using an adjusted neural network due to the fact it is accomplished in real time.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 56, 65, 66, 71-76, are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz as set forth above, in view of Barnhill (U. S. Patent 6157921, referred to as **Barnhill**), and further in view of Straforini. (U. S. Patent 6092059, referred to as **Straforini**)

**Claim 56**

Katz does not teach creating a training case using the first neural network; reconfiguring a first neural network in real-time based on the training case; transmitting the training case created by the first neural network to a second user; and reconfiguring a second neural network based on the training case.

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Barnhill teaches creating a training case using the first neural network. (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a neural network to generate a training set as taught by Barnhill to create a training case using the first neural network.

For the purpose of benefiting the parallel processing ability of a neural network.

Katz and Barnhill do not teach reconfiguring a first neural network in real-time based on the training case.

Straforini teaches reconfiguring a first neural network in real-time based on the training case. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz and Barnhill by having a neural trained in real time as taught by Straforini to configure a first neural network in real-time based on the training case.

For the purpose of being able to use the neural net in real time due to the fact is was trained in real time.

Katz does not teach transmitting the training case created by the first neural network to a second user.

Barnhill teaches transmitting the training case created by the first neural network to a second user. (**Barnhill**, abstract; Barnhill is set up as a client/server therefore all interactions with the server must be transmitted) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings

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of Katz by transmitting data as taught by Barnhill to transmit the training case created by the first neural network to a second user.

For the purpose of location not being a restriction parameter.

Katz and Barnhill do not teach reconfiguring a second neural network based on the training case.

Straforini teaches reconfiguring a second neural network based on the training case. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz and Barnhill by using information to configure a second neural network as taught by Straforini to reconfigure a second neural network based on the training case.

For the purpose of having one neural train a second neural network can be done in real time due to parallel programming.

#### Claim 65

Katz does not teach creating a training case; reconfiguring a first neural network in real-time based on the training case; transmitting the training case to a second user; and reconfiguring a second neural network in real-time based on the training case.

Barnhill teaches creating a training case. (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.) Straforini teaches reconfiguring a first neural network in real-time based on the training case (**Straforini**, C5:23-31) Barnhill teaches transmitting the training case to a second user (**Barnhill**, abstract; Barnhill is set up as a client/server therefore all interactions with the server

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must be transmitted) Straforini teaches reconfiguring a second neural network in real-time based on the training case. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by generate training sets and configure neural nets in real time and transmitting data to another user as taught by Barnhill and Straforini to have a training case; reconfiguring a first neural network in real-time based on the training case; transmitting the training case to a second user; and reconfiguring a second neural network in real-time based on the training case.

For the purpose of getting results in real time due to the fact that training is done elsewhere with another neural network.

#### Claim 66

Katz does not teach the neural network utilized by the second user is remotely located from the neural network used to create the training case.

Barnhill teaches the neural network utilized by the second user is remotely located from the neural network used to create the training case. (**Barnhill**, abstract; The server is located in a remote source from the customer.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by having a second neural network and user off site as taught by Barnhill to have the neural network utilized by the second user is remotely located from the neural network used to create the training case.

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For the purpose of getting a training set completed off site and sent to the first user.

#### Claim 71

Katz does not teach the training case created using the first neural network is stored on a central network server.

Barnhill teaches the training case created using the first neural network is stored on a central network server. (**Barnhill**, abstract ) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by having the software for a neural network in a server as taught by Barnhill to have the training case created using the first neural network being stored on a central network server.

For the purpose of having the neural network at a location where others can access it.

#### Claim 72

Katz does not teach the training case is transmitted when the second user downloads the training case from a central network server.

Barnhill teaches the training case is transmitted when the second user downloads the training case from a central network server. (**Barnhill**, abstract; 'Downloads' of applicant is equivalent to 'output' that is 'post-processed' of Barnhill.) It would have been obvious to a person having ordinary skill in the art at the time of

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applicant's invention to modify the teachings of Katz by having data in the form of a training case transmitted as taught by Barnhill and to have the training case is transmitted when the second user downloads the training case from a central network server.

For the purpose of training being conducted off site so not to hinder on site requirements and needs.

#### Claim 73

Katz does not teach creating a training case; reconfiguring a first neural network in real-time based on the training case; and transmitting the training case to a receiving module, wherein the receiving module is configured to reconfigure a second neural network in real-time based on the training case.

Barnhill and Straforini teach creating a training case (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.); reconfiguring a first neural network in real-time based on the training case (**Straforini**, C5:23-31); and transmitting the training case to a receiving module (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.), wherein the receiving module is configured to reconfigure a second neural network in real-time based on the training case. It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by training neural networks in real time when a training case is received as taught by Barnhill and Straforini to create a training case; reconfiguring a first neural network in real-time

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based on the training case; and transmitting the training case to a receiving module, wherein the receiving module is configured to reconfigure a second neural network in real-time based on the training case.

For the purpose of being able to down load new training parameters in real time so application of the neural network can occur in real time.

#### Claim 74

Katz does not teach receiving a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case; and reconfiguring the second neural network in real-time based on the training case.

Barnhill and Straforini teach receiving a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case (**Barnhill**, abstract; 'Receiving a training case' of applicant is equivalent to 'output' that is 'post-processed' of Barnhill.); and reconfiguring the second neural network in real-time based on the training case. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by receiving training data for reconfiguring a neural network as taught by Barnhill and Straforini to receive a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case; and reconfiguring the second neural network in real-time based on the training case.

For the purpose of using new training information in real time due to the fact the information was transmitted thus inferring off site production of training information.

#### Claim 75

Katz does not teach receiving a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case; and transmitting the training case to a receiving module, wherein the receiving module is configured to reconfigure a second neural network in real-time based on the training case.

Barnhill and Straforini teach receiving a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case (**Barnhill**, abstract; 'Receiving a training case' of applicant is equivalent to 'output' that is 'post-processed' of Barnhill.); and transmitting the training case to a receiving module, wherein the receiving module is configured to reconfigure a second neural network in real-time based on the training case.

(**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by information is sent to a neural network for training modifications as taught by Barnhill and Straforini to receive a training case from a transmitting module, wherein the transmitting module is configured to reconfigure a first neural network in real-time based on the training case; and transmitting the training case to a receiving module, wherein the receiving module

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is configured to reconfigure a second neural network in real-time based on the training case.

For the purpose of using new training information in real time due to the fact the information was transmitted thus inferring off site production of training information.

#### Claim 76

Katz does not teach creating a second training case; reconfiguring the second neural network in real-time based on the second training case; receiving a first training case; and further reconfiguring the second neural network in real-time based on the first training case.

Barnhill and Straforini teach creating a second training case (**Barnhill**, abstract; 'Creating a training case' of applicant is equivalent to the 'training data' of Barnhill.); reconfiguring the second neural network in real-time based on the second training case (**Straforini**, C5:23-31); receiving a first training case (**Barnhill**, abstract; Barnhill is set up as a client/server therefore all interactions with the server must be received.); and further reconfiguring the second neural network in real-time based on the first training case. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by having training information developed off site and then transmitted as taught by Barnhill and Straforini to create a second training case; reconfiguring the second neural network in real-time based on the second training case; receiving a first training case; and

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further reconfiguring the second neural network in real-time based on the first training case.

For the purpose of using information in real time due to the fact it was generated off site and then transmitting the information to the second neural network.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 58, 60-64, 67, 69, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz, Barnhill and Straforini as set forth above, in view of Phung (U. S. Patent Publication 20020007237, referred to as **Phung**)

Claims 58, 67

Katz, Barnhill and Straforini do not teach the training case is transmitted over a network.

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Phung teaches the training case is transmitted over a network. (**Phung**, ¶0033) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz, Barnhill and Straforini by sending information over a network system as taught by Barnhill to have the training case is transmitted over a network.

For the purpose of having the information being generated elsewhere and then sent to the desired location.

Claims 60, 69

Katz does not teach the network is a LAN.

Barnhill teaches the network is a LAN. (**Barnhill**, C15:63 through C16:13) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by using a LAN as taught by Barnhill to have the network is a LAN.

For the purpose of using established technology for reliable exchange of information.

Claims 61, 70

Katz, Barnhill and Straforini do not teach the network is a wireless network.

Phung teaches the network is a wireless network. (**Phung**, ¶0033) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz, Barnhill and Straforini by using a network

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which has no physical connections as taught by Phung to have the network is a wireless network.

For the purpose of adding another way for transmitting data to a neural network for training purposes.

#### Claim 62

Katz does not teach the training case created using the first neural network is stored on a central network server.

Barnhill teaches the training case created using the first neural network is stored on a central network server. (**Barnhill**, abstract ) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz by having the software for the neural network on a server as taught by Barnhill to have the training case created using the first neural network is stored on a central network server.

For the purpose of a central location where the training information can be generated from so that it can be accessed from many locations.

#### Claim 63

Katz, Barnhill and Straforini do not teach the training case is transmitted when the second user downloads the training case from a central network server.

Phung teaches the training case is transmitted when the second user downloads the training case from a central network server. (**Phung**, ¶0033; Phung is set up as a

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client/server so all information must be requested before transmitting.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz, Barnhill and Straforini by sending training information as taught by Phung to have the training case is transmitted when the second user downloads the training case from a central network server.

For the purpose of the central server being able to supply training sets to numerous locations where submissions arrive.

#### Claim 64

Katz and Barnhill do not teach the reconfiguration of the second neural network using the training case is accomplished in real time.

Straforini teaches the reconfiguration of the second neural network using the training case is accomplished in real time. (**Straforini**, C5:23-31) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz and Barnhill by having training information generated in parallel as taught by Straforini to have the reconfiguration of the second neural network using the training case is accomplished in real time.

For the purpose of being able to use reconfigurations in real time due to the fact they are generated in real time.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 59, 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katz, Barnhill, Straforini and Phung as set forth above, in view of Banavar (U. S. Patent 6336119, referred to as **Banavar**)

Claim 59, 68

Katz, Barnhill, Straforini and Phung do not teach the network is the Internet.

Banavar teaches the network is the Internet. (**Banavar**, C2:50 through C3:6) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Katz, Barnhill, Straforini and Phung by using the Internet as taught by Banavar to have the network is the Internet.

For the purpose of being able to have access to the server which contains the neural network that generates the training sets from anywhere the Internet is.

***Conclusion***

3. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

- U. S. Patent Publication 20020032583: Joao
- U. S. Patent Publication 20020010679: Feisher
- U. S. Patent Publication 20020003894: Rochrig
- U. S. Patent Publication 20010051774: Littrup
- U. S. Patent Publication 20010023419: Lapointe
- U. S. Patent 6317517: Lu
- U. S. Patent 6278793: Gur
- U. S. Patent 6035056: Karssemeijer

4. Claims 1-81 are rejected.

***Correspondence Information***

5. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3687. Any response to this office action should be mailed to:

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Alexandria, Virginia 22313,

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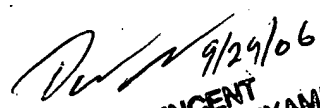
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Peter Coughlan

9/21/2006



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